

490283KXR.ST25.txt
SEQUENCE LISTING

<110> THE HORTICULTURE AND FOOD RESEARCH INSTITUTE OF NEW ZEALAND LIMITED

<120> ENZYME AND POLYNUCLEOTIDE ENCODING SAME

<130> 490283 KXR

<140> Not yet known

<141> 2003-10-15

<150> NZ 521984

<151> 2002-10-15

<160> 14

<170> PatentIn version 3.1

<210> 1

<211> 1952

<212> DNA

<213> Malus domestica

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aaacccgaac ctgaagcctc ttacttgatt aatcaaagac ggtctgcaaa ttacaagcca 180
aatatttgga agaacgattt cctagatcaa tctcttatca gcaaatacga tggagatgag 240
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ctcttcgaaa aggaaatcaa ggaagcccta gacagcattg cagctatcga aagcgacaat 420
ctcggcacia gagacgatct ctatggtact gcattacact tcaagatcct caggcagcat 480
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490283KXR.ST25.txt

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cttccatcac accgcagagt gcagtggttt gatgtcaa at ggcaaataca cgcctatgaa      780
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agtttgaaat aaatagcagc aagaagtttg cggttcagtt cgtcatggat aaattaatct     1860
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<210> 2

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<212> PRT

<213> Malus domestica

<400> 2

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Met Glu Phe Arg Val His Leu Gln Ala Asp Asn Glu Gln Lys Ile Phe
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490283KXR.ST25.txt

Gln Asn Gln Met Lys Pro Glu Pro Glu Ala Ser Tyr Leu Ile Asn Gln
 20 25 30

Arg Arg Ser Ala Asn Tyr Lys Pro Asn Ile Trp Lys Asn Asp Phe Leu
 35 40 45

Asp Gln Ser Leu Ile Ser Lys Tyr Asp Gly Asp Glu Tyr Arg Lys Leu
 50 55 60

Ser Glu Lys Leu Ile Glu Glu Val Lys Ile Tyr Ile Ser Ala Glu Thr
 65 70 75 80

Met Asp Leu Val Ala Lys Leu Glu Leu Ile Asp Ser Val Arg Lys Leu
 85 90 95

Gly Leu Ala Asn Leu Phe Glu Lys Glu Ile Lys Glu Ala Leu Asp Ser
 100 105 110

Ile Ala Ala Ile Glu Ser Asp Asn Leu Gly Thr Arg Asp Asp Leu Tyr
 115 120 125

Gly Thr Ala Leu His Phe Lys Ile Leu Arg Gln His Gly Tyr Lys Val
 130 135 140

Ser Gln Asp Ile Phe Gly Arg Phe Met Asp Glu Lys Gly Thr Leu Glu
 145 150 155 160

Asn His His Phe Ala His Leu Lys Gly Met Leu Glu Leu Phe Glu Ala
 165 170 175

Ser Asn Leu Gly Phe Glu Gly Glu Asp Ile Leu Asp Glu Ala Lys Ala
 180 185 190

Ser Leu Thr Leu Ala Leu Arg Asp Ser Gly His Ile Cys Tyr Pro Asp
 195 200 205

Ser Asn Leu Ser Arg Asp Val Val His Ser Leu Glu Leu Pro Ser His
 210 215 220

Arg Arg Val Gln Trp Phe Asp Val Lys Trp Gln Ile Asn Ala Tyr Glu
 225 230 235 240

Lys Asp Ile Cys Arg Val Asn Ala Thr Leu Leu Glu Leu Ala Lys Leu
 245 250 255

Asn Phe Asn Val Val Gln Ala Gln Leu Gln Lys Asn Leu Arg Glu Ala
 260 265 270

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Ser Arg Trp Trp Ala Asn Leu Gly Phe Ala Asp Asn Leu Lys Phe Ala
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 Arg Asp Arg Leu Val Glu Cys Phe Ser Cys Ala Val Gly Val Ala Phe
 290 295 300
 Glu Pro Glu His Ser Ser Phe Arg Ile Cys Leu Thr Lys Val Ile Asn
 305 310 315 320
 Leu Val Leu Ile Ile Asp Asp Val Tyr Asp Ile Tyr Gly Ser Glu Glu
 325 330 335
 Glu Leu Lys His Phe Thr Asn Ala Val Asp Arg Trp Asp Ser Arg Glu
 340 345 350
 Thr Glu Gln Leu Pro Glu Cys Met Lys Met Cys Phe Gln Val Leu Tyr
 355 360 365
 Asn Thr Thr Cys Glu Ile Ala Arg Glu Ile Glu Glu Glu Asn Gly Trp
 370 375 380
 Asn Gln Val Leu Pro Gln Leu Thr Lys Val Trp Ala Asp Phe Cys Lys
 385 390 395 400
 Ala Leu Leu Val Glu Ala Glu Trp Tyr Asn Lys Ser His Ile Pro Thr
 405 410 415
 Leu Glu Glu Tyr Leu Arg Asn Gly Cys Ile Ser Ser Ser Val Ser Val
 420 425 430
 Leu Leu Val His Ser Phe Phe Ser Ile Thr His Glu Gly Thr Lys Glu
 435 440 445
 Met Ala Asp Phe Leu His Lys Asn Glu Asp Leu Leu Tyr Asn Ile Ser
 450 455 460
 Leu Ile Val Arg Leu Asn Asn Asp Leu Gly Thr Ser Ala Ala Glu Gln
 465 470 475 480
 Glu Arg Gly Asp Ser Pro Ser Ser Ile Val Cys Tyr Met Arg Glu Val
 485 490 495
 Asn Ala Ser Glu Glu Thr Ala Arg Lys Asn Ile Lys Gly Met Ile Asp
 500 505 510
 Asn Ala Trp Lys Lys Val Asn Gly Lys Cys Phe Thr Thr Asn Gln Val
 515 520 525

490283KXR.ST25.txt

Pro Phe Leu Ser Ser Phe Met Asn Asn Ala Thr Asn Met Ala Arg Val
 530 535 540

Ala His Ser Leu Tyr Lys Asp Gly Asp Gly Phe Gly Asp Gln Glu Lys
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Gly Pro Arg Thr His Ile Leu Ser Leu Leu Phe Gln Pro Leu Val Asn
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<211> 20

<212> DNA

<213> Made in lab

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<210> 4

<211> 12

<212> DNA

<213> Made in lab

<400> 4
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12

<210> 5

<211> 20

<212> DNA

<213> Made in lab

<400> 5
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<210> 6

<211> 676

<212> DNA

<213> Malus domestica

490283KXR.ST25.txt

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acgatctcta tgctactgca ttacacttca agatcctcag gcagcatggc tataaagttt      180
cacaagatat atttggtaga ttcatggatg aaaagggcac attagagaac caccatttcg      240
cgcatttaaa aggaatgctg gaacttttcg aggccctaaa cctgggtttc gaaggtgaag      300
atattttaga tgaggcgaaa gcttccttga cgctagctct cagagatagt ggtcatattt      360
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gcgtcaacgc cacgttactc gaattagcaa agcttaattt caacgtagtt caggcccaac      540
tccaaaaaaaa cttaaggga gcatccaggt ggtgggcaaa cctgggcatc gcagacaact      600
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<210> 7

<211> 224

<212> PRT

<213> Malus domestica

<400> 7

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Lys Leu Glu Leu Ile Asp Ser Val Arg Lys Leu Gly Leu Ala Asn Leu
1           5           10          15

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Phe Glu Lys Glu Ile Lys Glu Ala Leu Asp Ser Val Ala Ala Ile Glu
20          25          30

```

```

Ser Asp Asn Leu Gly Thr Arg Asp Asp Leu Tyr Ala Thr Ala Leu His
35          40          45

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```

Phe Lys Ile Leu Arg Gln His Gly Tyr Lys Val Ser Gln Asp Ile Phe
50          55          60

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Gly Arg Phe Met Asp Glu Lys Gly Thr Leu Glu Asn His His Phe Ala
65          70          75          80

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His Leu Lys Gly Met Leu Glu Leu Phe Glu Ala Ser Asn Leu Gly Phe
85          90          95

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490283KXR.ST25.txt

Glu Gly Glu Asp Ile Leu Asp Glu Ala Lys Ala Ser Leu Thr Leu Ala
 100 105 110

Leu Arg Asp Ser Gly His Ile Cys Tyr Pro Asp Ser Asn Leu Ser Arg
 115 120 125

Asp Val Val His Ser Leu Glu Leu Pro Ser His Arg Arg Val Gln Trp
 130 135 140

Phe Asp Val Lys Trp Gln Ile Asp Ala Tyr Glu Lys Asp Ile Cys Arg
 145 150 155 160

Val Asn Ala Thr Leu Leu Glu Leu Ala Lys Leu Asn Phe Asn Val Val
 165 170 175

Gln Ala Gln Leu Gln Lys Asn Leu Arg Glu Ala Ser Arg Trp Trp Ala
 180 185 190

Asn Leu Gly Ile Ala Asp Asn Leu Lys Phe Ala Arg Asp Arg Leu Val
 195 200 205

Glu Cys Phe Ala Cys Ala Val Gly Val Ala Phe Glu Pro Glu His Ser
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<210> 8

<211> 20

<212> DNA

<213> Made in lab

<400> 8

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<210> 9

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<212> DNA

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gcacattaga gaaccaccat

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<210> 10

<211> 20

490283KXR.ST25.txt

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<213> Made in lab

<400> 10

cttcacaaga atgaagatct

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<210> 11

<211> 20

<212> DNA

<213> Made in lab

<400> 11

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<213> Made in lab

<400> 12

taatacgact cactataggg atgcttccct taagtgtt

38

<210> 13

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ctggcacctt atgagaaatc

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<210> 14

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<212> DNA

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ccacccatag aatcaagaaa

20